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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,617	02/27/2002	Masahiro Aoki	NITT.0068	8633
7590	08/09/2005			
Stanley P. Fisher Reed Smith LLP Suite 1400 3110 Fairview Park Drive Falls Church, VA 22042-4503			EXAMINER PHAN, HANH	
			ART UNIT 2638	PAPER NUMBER
DATE MAILED: 08/09/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/083,617	AOKI ET AL.	
	Examiner	Art Unit	
	Hanh Phan	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.  
 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☒ Claim(s) 13-18 is/are allowed.  
 6) ☒ Claim(s) 1-11 is/are rejected.  
 7) ☒ Claim(s) 12 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Applicant's election without traverse of Group I directed to claims 1-18 in the reply filed on 06/10/2005 is acknowledged.
2. In claim 12, lines 3 and 4, the phrase "the first semiconductor substrate" should be changed to -- the third semiconductor substrate--.

### ***Specification***

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

**-In the abstract section, the abstract exceeds 150 words in length.**

**Correction is required.**

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2638

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4 and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Mirshekar-Syahkal et al (Pub. No.: US 2002/0109897 A1).

Regarding claim 1, referring to Figures 2, 5 and 6, Mirshekar-Syahkal teaches an optical transmitter, comprising:

a semiconductor laser light source (i.e., laser light source 208, Fig. 2); and

a traveling-wave optical modulator (i.e., optical modulator 504, Figs. 5 and 6) for modulating output light of the semiconductor laser light source;

wherein the traveling-wave optical modulator (504, Figs. 5 and 6) comprises an external semiconductor modulator disposed on a first substrate (i.e., substrate 520, Figs. 5 and 6), the external semiconductor modulator (504) being capable of modulating output light of the semiconductor laser light source; and

a high-frequency line (i.e., a high frequency line 506, Figs. 5 and 6) disposed on a second substrate (i.e., substrate 502, Figs. 5 and 6) separated from the first substrate (i.e., substrate 520, Figs. 5 and 6); and in the traveling-wave optical modulator, a control electrode for the external semiconductor modulator, which is included in the external semiconductor modulator, is electrically connected to the high-frequency line (see pages 4 and 5, paragraphs [0038]-[0045]).

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Regarding claims 2 and 4, Mirshekar-Syahkal further teaches the first substrate is fixedly secured to the second substrate with an active layer side of the external semiconductor modulator disposed on the first substrate and a high-frequency line side of the second substrate facing each other (see Figs. 5 and 6).

Regarding claim 3, Mirshekar-Syahkal further teaches the external semiconductor modulator has a plurality of active components that are disposed at predetermined intervals cyclically; and in said traveling-wave optical modulator, each control electrode, which is included in each of the plurality of active components, is electrically connected to the high-frequency line (see Figs. 5 and 6).

Regarding claim 9, Mirshekar-Syahkal further teaches the first substrate is made of a compound semiconductor; and the second substrate is made from one selected from the group of silicon, aluminum nitride, boron nitride, silicon oxide, aluminum oxide, beryllium oxide, silicon carbide, and diamond (See Figs. 5 and 6).

Regarding claims 10 and 11, Mirshekar-Syahkal further teaches a drive circuit of the external semiconductor modulator is formed on the second substrate; and the drive circuit is electrically connected to the high-frequency line (see Figs. 5 and 6).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirshekar-Syahkal et al (Pub. No.: US 2002/0109897 A1) in view of Parayanthal et al (US Patent No. 6,057,954).

Regarding claims 5-8, Mirshekar-Syahkal teaches all the aspects of the claimed invention except fails to teach the semiconductor laser light source and the external semiconductor modulator are monolithically integrated. However, Parayanthal in US Patent No. 6,057,954 teaches the semiconductor laser light source and the external semiconductor modulator are monolithically integrated (Figs. 1 and 2, col. 1, lines 12-40). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the semiconductor laser light source and the external semiconductor modulator are monolithically integrated as taught by Parayanthal in the system of Mirshekar-Syahkal. One of ordinary skill in the art would have been motivated to do this since Parayanthal suggests in column 1, lines 12-40 that using such the semiconductor laser light source and the external semiconductor modulator are monolithically integrated have advantage of allowing providing an integral circuitry, saving space and size and reducing the cost of the device.

***Allowable Subject Matter***

8. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 13-18 are allowed.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**